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Before the
Federal Communications Commission
Washington, D.C. 20554

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In the matter of)

Revision of the Commission's Rules to Ensure
Compatibility with Enhanced 911 Emergency
Calling Systems)

CC Docket No. 94-102

911 Call Processing Modes)

WT Docket No. 99-328

Petition for Declaratory Ruling Regarding
Cellphone 911 Requirements in Response to
Referral from the United States District Court of
the Northern District of Illinois by
Wireless Consumers Alliance et al.)

Joint Petition for Declaratory Ruling on 911 Call
Processing Modes)

ORDER**Adopted: June 30, 2004****Released: July 22, 2004**

By the Commission: Commissioners Copps and Martin approving in part, dissenting in part, and issuing separate statements.

I. INTRODUCTION

1. In the *E911 Second Report and Order*, the Commission adopted rules to improve 911 call completion and established guidelines for 911-only call processing modes.¹ On September 3, 2003, the U.S. District Court for the Northern District of Illinois (Court) referred three questions to the Commission regarding the Commission's 911 call completion rules and the *E911 Second Report and Order*.² Specifically, the Court requests that the Commission consider and decide: (1) what is meant by "call completion;" (2) what is meant by "delivery of the call to the landline carrier;" and (3) "exactly what action must be performed by the handset in 17 seconds."³

2. In this Order, we clarify that under the A/B-Intelligent Retry (A/B-IR) 911 call processing mode, if the wireless handset fails to set up the call with the preferred carrier, the handset must switch to the non-preferred carrier within 17 seconds after the call has been initiated. The algorithm under the A/B-IR method deems a call set-up attempt complete when the handset receives a valid voice or

¹ *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, Second Report and Order, 14 FCC Rcd 10954 (1999) (*E911 Second Report and Order*).

² *In re Wireless Telephone 911 Calls Litigation*, MDL-1521, Memorandum Opinion, entered Sept. 3, 2003 (*Referral Order*).

³ *Id.* at 7.

traffic channel assignment and tunes to the assigned channel. At this point, the handset enters the "Conversation Task" and call setup is complete. The Commission noted and recognized that when the call set up is complete, the handset has not necessarily been connected with the 911 Public Safety Answering Point (PSAP), but did not address this issue when it adopted the 17 second time limit on initial call set-up attempts with the preferred carrier. Rather, in the *E911 Second Report and Order*, as discussed below, the 17-second time limit was adopted to address another concern, *i.e.*, the long call set-up times, which could lead to a different kind of "lock in" if the callers start prematurely terminating 911 calls that eventually would have been completed.⁴ Even with the A/B-IR algorithm deeming a call set-up attempt complete when the handset enters the "Conversation Task" (*i.e.*, receives a valid voice or traffic channel assignment, and tunes to the assigned channel), the Commission found that this 911 call processing method meets the Commission's basic objectives to improve the *status quo* regarding 911 call completion if it limits its call set-up times to a maximum of 17 seconds and provides effective feedback to inform the user when the 911 call processing is underway.⁵

II. BACKGROUND

3. *E911 Second Report and Order.* In the *E911 Second Report and Order*, the Commission adopted Section 22.921 (effective February 13, 2000) requiring that newly manufactured analog handsets use a special 911-only call processing mode that allows 911 calls to be transmitted with either analog carrier. In that *Order*, the Commission laid out guidelines for 911-only call processing modes and approved three such modes. One of these was A/B-IR,⁶ a method developed and favored by the wireless industry. Approval of A/B-IR was, however, subject to two conditions:

- 1) The handset must provide effective feedback to inform the user when 911 call processing is underway and has not finished; and
- 2) To prevent the handset from spending more than a reasonable amount of time seeking to complete the call with the preferred carrier, the Commission required that a 17-second time limit be placed on the initial attempt to set up the call with the preferred carrier.⁷

4. *Litigation Issues.* In 2002, a series of lawsuits were filed in several states by individual plaintiffs and the Wireless Consumers' Alliance (WCA), alleging that certain handset manufactures and carriers named as defendants in the litigation have failed to comply with Commission requirements to protect the ability of wireless consumers to successfully make emergency 911 calls.⁸ These cases were consolidated in the United States District Court, Northern District of Illinois.⁹

5. As the Court's *Referral Order* describes it, plaintiff's case is based on the contention that the 17-second condition treats a 911 call as "complete" when it is "*transmitted to the base station and then to the landline phone system.*"¹⁰ The defendants oppose this interpretation of the condition and contend that the condition requires that the handset retry the call if the handset is not *assigned a voice*

⁴ *E911 Second Report and Order*, 14 FCC Rcd at 10970, paras. 36-37.

⁵ *Id.* at 10971-72, para. 41.

⁶ The *E911 Second Report and Order* also specified that the Commission might approve alternative 911 call completion methodologies. See, *e.g.*, *id.* at 10993, paras. 89-90.

⁷ *Id.* at 10971-72, paras. 40-41.

⁸ The suits seek relief including handset recalls, damages, and injunctions.

⁹ *Referral Order* at 2.

¹⁰ *Id.* (emphasis added) (*citing* Plaintiffs' Brief in Opposition at 9).

channel by the preferred carrier within 17 seconds.¹¹

6. In the course of this litigation, the defendants moved for a stay of the action and referral of the issue to the Commission under the doctrine of primary jurisdiction. In its September 3, 2003 Order, the court concluded that the language of the *E911 Second Report and Order* was ambiguous, and the Commission did not speak clearly as to exactly what act must be performed by the handset in 17 seconds.¹² The court granted the defendants' motion, and referred the controversy to the Commission for resolution.¹³ Specifically, the Court asked the Commission what is meant by "call completion," "delivery of the call to the landline carrier," and "what action must be performed by the handset in 17 seconds."¹⁴ Subsequently, on October 3, 2003, WCA filed a petition for declaratory ruling requesting that the Commission respond to the questions raised by the Court's referral.¹⁵ The defendant, handset manufacturers and carriers (Joint Petitioners), filed a Joint Petition for Declaratory Ruling on October 14, 2003.¹⁶

7. *Competing Petitions for Declaratory Ruling.* WCA asserts in its petition that the clear language of the *E911 Second Report and Order*, in particular paragraph 41 and footnote 52, requires handsets to switch to a competitor's system whenever a 911 call fails to connect to the landline carrier within 17 seconds.¹⁷ WCA argues that the Joint Petitioners' assertion -- that assignment of a voice channel within 17 seconds is all the Commission required -- is inconsistent with the language of the *E911 Second Report and Order* and the purpose of the 17 second condition, which was to combat "lock-in" of 911 calls.¹⁸

8. The Joint Petitioners seek confirmation that a call or access attempt is deemed "complete" under the *E911 Second Report and Order* upon the assignment of a voice or traffic channel.¹⁹ The Joint Petitioners argue that the Commission's 911 call processing policies and the industry's implementation of it have been a significant success, with tens of millions of handsets seeking to complete a 911 call on the non-preferred analog network if no signal was detected on the preferred analog network.²⁰ Joint Petitioners also claim that their understanding of call completion is fully consistent with the *E911 Second Report and Order*, the record, technical standards for analog calls, and actual technical

¹¹ Petition for Declaratory Ruling on 911 Call Processing Modes, filed October 14, 2003 (*Joint Petition*) at 3 (emphasis added).

¹² *Referral Order* at 6.

¹³ *Id.* at 5-8.

¹⁴ *Referral Order* at 7.

¹⁵ Petition of Wireless Consumers Alliance *et al.* for a Declaratory Ruling Regarding Cellphone 911 Requirements in Response to Referral from the United States District Court for the Northern District of Illinois, filed October 3, 2003 (*WCA Petition*).

¹⁶ See *Joint Petition*.

¹⁷ *WCA Petition* at 7. In some places WCA claims that "delivery to the landline carrier" is substantively the same as receipt of the voice signal by the wireless base station, because transmission from the base station to the landline carrier is virtually instantaneous. *Id.* at i, n. 3. It submits that the 17 second condition requires that the handset switch to the non-preferred carrier if the handset's voice channel transmission has not been successfully received by the wireless base station within 17 seconds. *Ex Parte* Memorandum of Wireless Consumers Alliance *et al.*, Exhibit B at page 1 (filed February 9, 2004).

¹⁸ *WCA Petition* at 8-9.

¹⁹ *Joint Petition* at 5. The Joint Petition also requests that this confirmation apply to subsequent approvals and interpretations of alternative call processing methodologies.

²⁰ *Joint Petition* at 19-21.

operation of analog handsets, while the plaintiffs' interpretation is not.²¹ They argue, for example, that the Commission clearly indicated that the A/B-IR method as approved would involve minor, inexpensive modification to software of handsets only, while the plaintiffs' interpretation of the 17 second condition would have imposed obligations on base station equipment manufacturers, wireless and wireline carriers, and standards bodies, and would have required an extended implementation period.²² The Joint Petitioners also assert that acceptance of plaintiffs' interpretation would violate principles of administrative law and procedure, because the Commission did not provide notice of such a substantial change in the way that handset manufacturers, wireless carriers, and landline carriers process 911 calls, failed to give clear notice of such a requirement, and would have required an extensive Final Regulatory Flexibility Act analysis to discuss the significant new burdens placed on numerous small entities.²³

III. DISCUSSION

9. After reviewing the *E911 Second Report and Order*, WCA's and the Joint Petitioners' arguments, we clarify that the 17 second condition requires that the handset retry an initial 911 call attempt with the non-preferred carrier if the handset is not assigned a voice channel by the preferred carrier within 17 seconds. As discussed above, the Court found that the *E911 Second Report and Order* and the Commission's 17 second requirement were ambiguous. Accordingly, we will first put the relevant text of the *E911 Second Report and Order* into context to explain the Commission's language and intent in approving the A/B-IR 911-only call processing mode and the 17 second requirement.

10. *Improving 911 Call Completion.* In general, the *E911 Second Report and Order* and Section 22.921 of the Commission's rules represent the Commission's objectives to increase the reliability of using analog wireless phones to reach emergency help.²⁴ Before adoption of Section 22.921, analog handsets were typically programmed to attempt all calls with a preferred carrier. This programming did not distinguish between emergency calls or regular calls, nor did it permit the handset to try another carrier in case of emergencies, even if the preferred carrier had no radio signal in the area.²⁵

11. Section 22.921 was adopted to address this situation. The rule requires that "[a]ll mobile phones . . . capable of operating in an analog mode, . . . must incorporate a special procedure for processing "9-1-1" calls . . . and must override any programming in the mobile unit that determines the handling of a non-911 call and permit the call to be handled by other analog carriers."²⁶ The rule also requires that this special procedure "must incorporate any one of the 9-1-1 call system selection processes endorsed or approved by the Commission."²⁷

12. To increase the reliability of using analog wireless phones to reach emergency help, in the *E911 Second Report and Order*, the Commission outlined the general criteria for evaluating 911 call processing modes. According to the Commission, the most basic goal was to improve the 911 call

²¹ *Id.* at 21-27.

²² *Id.* at 27-32.

²³ *Id.* at 32-34.

²⁴ *E911 Second Report and Order*, 14 FCC Rcd at 10956, para.3.

²⁵ *Id.* at 10957, para.6. Analog cellular licenses are generally assigned to two carriers in each market, designated as the A carrier and the B carrier. All analog carriers use compatible technology and air interface standards, so that any analog handset can be used for both A and B carrier systems. However, analog handsets are frequently programmed to permit calls only to a specific preferred carrier, a mode referred to as "A-only" or "B-only." *Id.* at 10963, para. 20.

²⁶ 47 C.F.R. § 22.921, (64 FR 34568, June 28, 1999).

²⁷ *Id.*

completion rate so far as practicable and, where possible, allow for the ability to complete 911 calls via the preferred carrier.²⁸ Moreover, the Commission stated that a 911 call processing mode should not disrupt the overall operation of 911 service, including the networks of both wireless carriers and public safety organizations; should address the lock-in problem in a reasonable and effective way that substantially reduces or eliminates the likelihood that a 911 call might be locked in on the system of a carrier that is unable to provide a usable voice channel; and that the benefits of the calling mode to public safety should outweigh any additional costs.²⁹

13. The Commission also applied the criteria to evaluate the three 911-only modes that have been presented in the record, including A/B-IR. In approving these modes, the Commission recognized, that none of the modes were perfect and that each mode, while expected to improve the *status quo* regarding the 911 call completion rate, had its own disadvantages including circumstances where the handset fails to deliver a 911 call, and the caller might still experience certain lock-in problems.³⁰ The Commission expected that deployment of different 911 call processing modes should provide instructive real-world experience that may guide future research and development in this area.³¹ The Commission sought to encourage further improvement of the 911 call completion rate, particularly in light of the rapidly growing digital services,³² and delegated authority to the Wireless Telecommunications Bureau to act on requests for new or modified 911 call processing modes.³³

14. *The A/B-IR Mode and Completion of Call Set-Up.* In the *E911 Second Report and Order*, the Commission evaluated and found that A/B-IR satisfies its 911 call processing criteria discussed above and should improve 911 call completion rate.³⁴ The Commission concluded that the sequential procedure A/B-IR uses to initiate "a new call attempt when the 911 call fails for any of several reasons, including the lack of a control channel or a voice channel at the time of call set-up and the loss of signal during a call, is a reasonable and effective approach to ensuring that 911 calls are switched to the other cellular carrier."³⁵ This algorithm, the Commission found, "should effectively address the lock in problem."³⁶

15. We note that in general, under the analog standard (e.g., ANSI TIA/EIA-553-A-1999), as well as under the A/B-IR algorithm, when the handset receives a valid voice or traffic channel assignment and tunes to the assigned voice channel, call set-up is considered "completed." In other words, the call completion has occurred.³⁷ In the *E911 Second Report and Order*, the Commission did not change this common understanding of when the completion of call set-up occurs, but rather took notice of it as a concern.³⁸ Because the A/B-IR mode, otherwise, reasonably satisfied the Commission objective to

²⁸ *E911 Second Report and Order*, 14 FCC Rcd at 10996, paras. 28-29.

²⁹ *Id.*

³⁰ *Id.* at 10956, para. 3, 10988-89, paras. 78-80.

³¹ *Id.* at 10989, para. 80.

³² *Id.* at 10993, paras. 89-90.

³³ *Id.* at 10993, para. 88, 10995, para. 97.

³⁴ *Id.* at 10969, para. 34.

³⁵ *Id.* at 10969, para. 35.

³⁶ *Id.*

³⁷ TIA/EIA-553-A, Mobile Station - Base Station Compatibility Standard, (Nov. 1999) specifies that after the assignment of a voice channel a handset shall tune to the designated voice channel, turn on the transmitter at the assigned power level, turn on the SAT transponder and set the stored SAT Color code to that assigned during call setup. At this point, handset enters the Conversation Task and call setup is complete. Also see *Joint Petition* at 27 & Attach. 2 at 3.

³⁸ *E911 Second Report and Order*, 14 FCC Rcd at 10970, para. 36.

improve 911 call completion and permitted the call to be transmitted by the non-preferred carrier when there was no detectable signal from the preferred analog network, as well as if a signal is detected on the preferred analog network but there was no voice channel assigned, the Commission found that A/B-IR promised a significant improvement to the *status quo* and benefits to the public interest.³⁹

16. Moreover, the Commission found that A/B-IR required only relatively modest changes in handset software that should not be unduly expensive and should not take long to incorporate into mobile units.⁴⁰ The Commission believed that a potential advantage of this approach was also the fact that this mode may be adaptable to digital and multi-mode operations.⁴¹ A TIA working paper in that record indicated that this mode could be implemented within existing standards and compatible with present network registration and control procedures and functions.⁴² Accordingly, the Commission did not intend that the adoption of this mode should be unduly expensive or take long to incorporate into mobile units, or require any changes to existing standards and wireline or wireless network control procedures and functions. All of these were consistent with the Commission's criteria for evaluating 911 call-processing modes explained above.⁴³

17. Based on the foregoing, it is reasonable to conclude that the Commission did not mandate that the handset, after completing the call set-up, monitor the channel and ensure that the call indeed transmitted to the landline. Such a requirement would necessitate technical changes to analog operations and existing standards as well as changes to wireline or wireless network control procedures and functions which the Commission clearly did not intend.⁴⁴ Instead, the Commission encouraged the industry standards body, TIA, wireless carriers, and mobile phone manufactures to be active in minimizing call set-up delays and lock in.⁴⁵ With possible future needs in mind, the Commission stated that it would continue to monitor TIA's progress with respect to these issues.⁴⁶ In the meantime, however, the Commission found that the A/B-IR met its basic objectives and will serve to improve the *status quo* regarding 911 call completion.⁴⁷ As stated above, even though none of the approved 911-only modes were perfect, all reasonably improved the *status quo*.⁴⁸ The Commission expected that a policy of technological and competitive neutrality, which allowed a range of reasonable methods to be used and further developed, would help encourage new and improved methods better than a mandate requiring use of a specific technical solution.⁴⁹

18. *17 Second Time Limit.* The A/B-IR mode, as initially proposed, however, had a significant disadvantage that involved the length of 911 call set-up time. The Commission found that the

³⁹ In the *E911 Second Report and Order*, the Commission aimed to increase the reliability of using analog wireless phones to reach emergency help, particularly from location where the wireless caller's preferred carrier has a blank spot, an area where the preferred system's radio signal is non-existent or significantly weak. *E911 Second Report and Order*, 14 FCC Rcd at 10957, para. 6.

⁴⁰ *Id.* at 10969, para. 35.

⁴¹ *Id.*

⁴² *Id.*

⁴³ See para. 12, *supra*.

⁴⁴ Comments of the Telecommunications Industry Association, filed January 20, 2004.

⁴⁵ *E911 Second Report and Order*, 14 FCC Rcd at 10972, para. 42.

⁴⁶ *Id.*

⁴⁷ *Id.* at 10972-73, para. 42.

⁴⁸ *Id.* at 10956, para. 3, 10988-89, paras. 78-80.

⁴⁹ *Id.* at 10989, para. 80.

A/B-IR approach could result in excessively long call set-up times. Under this approach, the handset could spend as much as 48 seconds seeking to complete the call with the preferred carrier, a length of time that could lead the 911 caller to sign off even in cases where the call could have been completed by the non-preferred carrier.⁵⁰ The Commission feared that this may create a type of lock in, undercutting its first principle, improving 911 call completion rates as far as practicable, as well as the principle that 911 call processing mode should address the lock-in problem in a reasonably effective way.⁵¹ The Commission determined, however, that this problem could be addressed easily in several ways.⁵² The Commission did not specify that any particular technical solution be used, only that a time limit be implemented.⁵³

19. The Commission concluded, accordingly, that "a time limit should be placed on the initial attempt to *set-up* the call with the preferred carrier,"⁵⁴ and that 17 seconds would be "a reasonable and achievable maximum time period."⁵⁵ Because, as proposed, the A/B-IR call set up process could have taken as much as 48 seconds, in paragraph 41, the Commission discussed the reasonableness of reducing this time to "17 seconds" (as opposed to other time periods) as an achievable maximum period. In setting the 17-second time limit, the Commission also expected that "the great majority of 911 calls will be handled by the preferred carrier within normal call set-up periods."⁵⁶ The Commission explained that in general, a call would take a maximum of 17 seconds to process, (*i.e.*, 12 seconds to receive a voice channel assignment from the base station and 5 seconds for the base station to receive a voice channel transmission from the handset).⁵⁷ Because of that, the 17 seconds is also a sufficient amount of time to adequately determine whether a call could have been delivered to the landline carrier, by the preferred carrier (*i.e.*, if the preferred carrier did not transmit the call to the landline carrier at that point, it is clear that it can not carry the call from that location). Accordingly, the Commission found that waiting a maximum of 17 seconds before triggering the obligation to retry the call with the non-preferred carrier is a reasonable and achievable maximum time period.⁵⁸ At the same time, the 17 seconds is reasonably short to alleviate, in combination with feedback information to the caller, the concern that 911 callers would abandon the call while the call set-up attempt was still in progress. Thus, the Commission concluded that with this time limit, premature "abandonment of 911 calls that eventually could have been completed should be very infrequent or nonexistent."⁵⁹

20. The 17 second time limit applies to the initial "call set-up" attempts between the handset and the preferred carrier's base station, not to the further stages of call processing (*i.e.*, delivery of the call

⁵⁰ *Id.* at 10970, para. 36.

⁵¹ *Id.* at 10970, para. 37.

⁵² *Id.* at 10971, para. 38.

⁵³ The Commission observed, for example, that the handset could be set to limit the call attempts to the preferred carrier to one or two, or to reduce the length of the scan and other aspects of the call setup process. *Id.* at 10971, para. 38. Setting an overall time limit, for example by adding a timer that would halt the call attempt with the preferred carrier and launch a retry with the non-preferred carrier, would be another method of compliance.

⁵⁴ *Id.* at 10971, para. 40 (emphasis added).

⁵⁵ *Id.* at 10971, para. 41.

⁵⁶ *Id.*

⁵⁷ *Id.* We note that each of these steps is part of the initial process of setting up the call to the wireless carrier, not with any later parts of the call delivery and completion process.

⁵⁸ *Id.*

⁵⁹ *Id.*

to the landline from the base station).⁶⁰ As discussed above, under the analog standard, call completion occurs when the handset receives a valid voice or traffic channel assignment and tunes to the assigned channel. In other words, if the handset has not received a voice channel assignment within 17 seconds on the preferred carrier's system, the handset must attempt to set up the call with the non-preferred carrier. As discussed above, the Commission expected that A/B-IR could be implemented within existing standards and with relatively minor changes in handset software.⁶¹ This interpretation is fully consistent with the Commission's intent and objectives set forth in the *E911 Second Report and Order*.

21. *Delivery to the landline.* Although the court found that the Second Report and Order is ambiguous, it is reasonable to conclude that the Commission did not mandate that the call must be delivered to the landline carrier within 17 seconds nor require that the handset verify that its voice channel transmission is indeed received at the preferred carrier's base station. The Commission did mention delivery of the call to the landline carrier in two places in the discussion of the A/B-IR method, but in context, those represent general statements describing 911 call completion objectives and the expected effect of the A/B-IR method. At no point, however, do these statements clearly indicate that the Commission was conditioning the approval of A/B-IR method on the successful development and incorporation into the A/B-IR method of all the technical changes necessary for a handset to monitor the call until it is successfully "delivered to the landline carrier."

22. WCA argues that paragraph 41 of the *E911 Second Report and Order* supports its interpretation that the Commission mandated that the call must be delivered to the landline carrier within 17 seconds.⁶² In paragraph 41, the Commission said that "[i]n general terms, the handset should seek to complete the call with the non-preferred carrier if the preferred cellular carrier has not successfully delivered the call to the landline carrier within 17 seconds after the call is placed."⁶³ But using the phrase "[i]n general terms" as a preamble indicates that this language is descriptive of what the Commission expected that the A/B-IR call-processing mode would achieve in most circumstances, not a technical prescription of how the 17-second condition must operate. The use of the word "should" in this sentence, rather than "must" or "is required to," further establishes that this sentence was not intended to set a technical requirement for how the 17-second condition was to be met.⁶⁴

23. Furthermore, the Commission expected that A/B-IR, as approved, could be implemented through limited changes in handset programming and operations. In evaluating A/B-IR, the Commission concluded that the method "requires only relatively modest changes in handset software that should not be unduly expensive and should not take long to incorporate into mobile units."⁶⁵ In setting an

⁶⁰ In discussing the advantages and limitations of the three approved methods, the Commission explained that "[t]he 17 second time limit for the initial call attempt with the preferred carrier will further limit [call processing] delays when the call cannot be handled by the preferred carrier for other reasons as well as limiting possible lock-in problems." *Id.* at 10988, para. 79 (emphasis added).

⁶¹ *Id.* at 10969, para. 35, 10971, para. 38, & 10992, para. 87.

⁶² *WCA Petition* at 2, 4.

⁶³ *Id.* at 10971, para. 41. This language is repeated in the Final Regulatory Flexibility Analysis. *Id.* at 11003.

⁶⁴ Footnote 52 in the *E911 Second Report and Order* also refers to a time limit for delivering the call to the landline network, but this language similarly does not indicate that the Commission was prescribing a specific method by which the 17 second condition is to be achieved. *Id.* at 10972, n. 52. The footnote says that "we are seeking to ensure that communication between the handset and base station on the voice channel goes beyond Conversation State and reaches the point where the handset's voice channel transmission is indeed received at the base station." *Id.* As discussed before, this language intended to explain the reasonableness of the 17 seconds as a maximum time sufficient to achieve a call set-up, in general, not to set a required technical procedure or method to determine that the call has been delivered to the landline carrier.

⁶⁵ *Id.* at 10969, para. 35.

implementation schedule, the Commission similarly understood that it would be relatively easy to begin to manufacture handsets incorporating such minor programming changes.⁶⁶ As the Joint Petition points out, requiring handsets to monitor whether a call has been transmitted and received by the wireline carrier would require substantial revamping of network equipment and practices as well as of wireless handsets.⁶⁷ Such changes were neither contemplated nor required by the Commission in its approval of the A/B-IR method.

24. Although the language in paragraph 41 of the *E911 Second Report and Order* might be considered ambiguous, it is reasonable to conclude that the Commission did not mandate that the call must be delivered to the landline carrier within 17 seconds, or the handset must have capability to verify that its voice channel transmission is indeed received at the base station. Such a requirement might have further improved 911 call completion rate, but the successful implementation of such a method would necessitate changes to wireless and wireline networks.⁶⁸ We believe that the controlling language for the 17-second requirement is found in paragraph 38 stating that the time limit may be met in several ways including a limit on the number of call attempts, and in paragraph 40 and elsewhere that the Commission sets a time limit (*i.e.*, 17 seconds) "on the initial attempt to set-up the call with the preferred carrier."⁶⁹

25. This interpretation is also consistent with Section 22.921 of the Commission's rules, which requires incorporation of a 911 call system selection processing into the analog phones, without mentioning the expected *effect* of such systems, *i.e.*, reaching emergency help through analog phones.⁷⁰ Specifically, the A/B-IR 911 call processing mode, as described in paragraph 33 of the *E911 Second Report and Order*, overrides any features in the handset that would prevent scanning of the control channels of both the A and B analog cellular carriers.

26. In a later filing, WCA contends that there are any number of ways in which handsets could comply with its interpretation of the 17 second condition.⁷¹ WCA claims, for example, that the existing "fade timer" which handsets and base stations use to monitor the supervisory audio tone (SAT) after assignment of a voice channel, could be used to verify the receipt of handset's communication by the base station.⁷² WCA explains that when a voice channel has been assigned, the fade timer begins to count. If the fade timer reaches 5 seconds and "the handset is still receiving a signal from the base station, then, by definition, a communication on the voice channel from the handset to the base station has reached the base station and has been instantaneously delivered to the landline carrier's facilities."⁷³ This statement, however, assumes that there is a Commission mandated obligation on the part of carriers' base stations to drop a call 5 seconds after the assignment of a voice channel if the base station does not detect the handset's transponded SAT. The *E911 Second Report and Order* did not impose any such obligations on carriers.

27. Further, if a voice channel is assigned and transmissions ensue, the base station

⁶⁶ *Id.* at 10992, para. 87.

⁶⁷ *Joint Petition* at 27-32 & Attachment at 5.

⁶⁸ *See* paras. 15 and 16, *supra*.

⁶⁹ *E911 Second Report and Order*, 14 FCC Rcd at 10971, paras. 38, 40.

⁷⁰ *See* 47 C.F.R. § 22.921.

⁷¹ *Ex Parte* Response of Wireless Consumers Alliance *et al.* to Joint Petition for Declaratory Ruling, filed November 25, 2003 at 17-20.

⁷² *Id.* at 19-20. A "fade timer" is used to prevent calls from being disconnected due to the normal variations in signal levels caused by multiple reflections, shadowing, movement, etc.

⁷³ *Id.* at 20.

continuously monitors the quality of the signal received from the handset. If the signal level drops below a specified level for a predetermined period of time, the cellular system may attempt to maintain the call by reassigning it automatically to another base station or cell site. If the call cannot be reassigned, then the call is terminated and will be disconnected. The handset, however, would consider this a completed call and the next 911 call attempt would be initiated with the preferred carrier. The monitoring of the signal quality function is only a function of carriers' base stations, and it does not assist handsets in determining whether their transmissions are being received by a landline carrier. As the Joint Petitioners point out, the SAT does not travel beyond the base station and thus the fade timer cannot determine whether a signal has been transmitted or received by a landline carrier or PSAP.⁷⁴ We agree with Joint Petitioners that the implementation of a fade timer approach would require changes in underlying technical standards, including standards for base stations, which the *E911 Second Report and Order* clearly did not anticipate or intend to require.⁷⁵

28. We believe that the A/B-IR algorithm has and will continue to help improve the 911 call completion rate, particularly for digital handsets and in rural areas. This method remedies the key issues discussed in the rule making by ensuring that 911 calls will be attempted with the non-preferred carrier if there is no signal present from the preferred carrier or if the handset does not receive a valid voice or traffic channel assignment. We recognize that situations can occur where the handset hears the base station but the base station does not hear the mobile, but it is not clear that this occurs very often, nor can this be remedied without making changes in the network. At the same time, as the Commission said in the *E911 Second Report and Order*, we wish to encourage further efforts to improve 911 call completion, such as voluntary steps by carriers and manufacturers, while we also stand ready to take the necessary steps to implement them.⁷⁶ The voluntary steps handset manufacturers have taken to extend the A/B-IR algorithm to digital operations is one encouraging sign of such voluntary efforts.

29. In this order, our task was limited to answering the court's questions on the *E911 Second Report and Order*. We will take steps to further improve 911 call completion rate, if needed. We encourage all interested parties to provide any information that may be helpful in evaluating current 911 call completion rate to assess whether further regulatory steps are necessary.

IV. ANSWERS TO THE COURT'S QUESTIONS

30. The Court's *Referral Order*, referencing language in the *E911 Second Report and Order*, requests that the Commission consider and decide three specific issues: (1) What is meant by "call completion?" (2) What is meant by "delivery of the call to the landline carrier?" and (3) Exactly what action must be performed by the handset in 17 seconds? Based on our analysis of the language and intent of the *E911 Second Report and Order*, the specific answers to the court's questions are as follows:

1. What is meant by "call completion?"

31. Within the context of the A/B-IR call processing mode, "call completion" occurs when the handset receives a valid voice or traffic channel assignment and tunes to the assigned channel. If the handset has not received a voice channel assignment within 17 seconds on the preferred carrier's system, the handset must attempt to set up the call on the non-preferred carrier's system.

⁷⁴ Comments on Petition for Declaratory Ruling and Ex Parte Response of Wireless Consumers Alliance, filed December 8, 2003 at 11-12.

⁷⁵ *Id.* at 20.

⁷⁶ *E911 Second Report and Order*, 14 FCC Rcd at 10993, para. 90.

2. What is meant by "delivery of the call to the landline carrier?"

32. This refers to the further stage of call processing, after the call is delivered to the wireless carrier's base station, when the call is routed by the wireless carrier through its switch and onto trunks linking that switch to facilities of the local wireline carrier. In the case of 911 calls, the call will typically be routed by the wireline carrier to a switch called a selective router, which identifies the PSAP designated to handle calls from the area where the call was received and delivers the call to that PSAP. The references to "delivery of the call to the landline carrier" in the *E911 Second Report and Order* expressed the Commission's expectation that the A/B-IR mode would improve overall 911 call completion, including improving the likelihood that 911 calls will be received by the PSAP. However, the "delivery of the call to the landline carrier" stage of call processing is not relevant to the operation of A/B-IR mode or to compliance with the 17 second condition.

3. What action must be performed by the handset in 17 seconds?

33. During the 17 second period, a handset using the A/B-IR method must override any features which prevent scanning of either the A side or B side carrier control channels, and scan the control channels of the handset's preferred carrier setting, either A or B. If the handset does not detect a signal from the preferred carrier, the handset must then retry the call with the non-preferred carrier. If the handset does detect a signal (*i.e.*, forward control channel) from the preferred carrier, the handset must attempt to complete the call with the preferred carrier by requesting assignment of a voice channel. If the handset receives a voice or traffic channel assignment and tunes to the assigned voice channel, the call is deemed completed. If the initial call set-up attempts with the preferred carrier fail, because a voice channel is not assigned within 17 seconds, the handset must terminate its call set-up attempts with the preferred carrier and retry to set up the call with the non-preferred carrier. The handset may meet the 17 second condition in any of several ways, including limiting the number of initial call attempts or setting an overall time limit for initial call attempts to the preferred carrier.


V. ORDERING CLAUSES

34. IT IS ORDERED, pursuant to Section 4(i) of the Communications Act of 1934, as amended, 47 U.S.C. §154(i) and Section 1.2 of the Commission's rules, 47 C.F.R. §1.2, that the Petition for Declaratory Ruling filed by the Joint Petitioners IS GRANTED to the extent indicated herein.

35. IT IS FURTHER ORDERED, that the Petition for Declaratory Ruling filed by the Wireless Consumers Alliance, *et al.* IS DENIED.

36. IT IS FURTHER ORDERED, that the Commission's Office of Public Affairs, Reference Operations Division, shall send a copy of this Order to the United States District Court, Northern District of Illinois.

FEDERAL COMMUNICATIONS COMMISSION


Marlene H. Dortch
Secretary

SEPARATE STATEMENT OF COMMISSIONER MICHAEL J. COPPS
Approving in Part, Dissenting in Part

Re: Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Call Processing Modes in CC Docket No. 94-102 and WT Docket No. 99-328 (Adopted June 30, 2004)

When the FCC takes actions related to public safety and the Nation's 911 system it must be especially careful. Americans rely on 911 in life-threatening circumstances and it is our responsibility to ensure that the system works. Unfortunately, the question of whether a complex technical problem leaves callers in certain circumstances without access to the 911 system remains unanswered.

If a mobile carrier's analog cell phone fails to connect a caller with 911 through that carrier's network, FCC rules require the phone to switch to another carrier's network within 17 seconds. This rule means that even if a caller is in an area that is a dead zone for their carrier, a 911 call remains possible as long as some other carrier provides service in that area.

The Wireless Consumers Alliance and other parties assert that many mobile phone networks are designed in a way that creates a risk that when this switch happens, a 911 call will not be connected to a 911 center, leaving the caller without access to help in an emergency. This problem is known as "lock in". The Commission attempted to fix the problem in 1999. Carriers and manufacturers assert that the FCC's 1999 action did in fact improve the situation, but was written in such a way that did not require them to ensure that the call ever reaches a 911 center, but only that the carrier assign a voice channel to the 911 caller within 17 seconds which may or may not reach the 911 center. The 1999 Order is not a model of clarity. In places it appears to contradict itself, and I cannot say that it clearly requires more than the manufacturers and carriers claim that it does, although today's Order makes the 1999 decision out to clearer than it is.

No matter what the outcome of our retrospective analysis we have the prospective duty to determine whether some 911 calls are failing unnecessarily. If we find that they are failing, we have to duty to fix the problem. Nonetheless, the majority refuses even to agree to explore whether 911 calls are failing, much less to agree to fix the problem if we find that they are failing. Because this refusal may create unnecessary risks, I must dissent in part.

SEPARATE STATEMENT OF COMMISSIONER KEVIN J. MARTIN
Approving in Part, Dissenting in Part

Re: Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Order, CC Docket No. 94-102, WT Docket No. 99-328

The central questions in this item – what is meant by “call completion,” what is meant by “delivery of the call to the landline carrier,” and what action must be performed by the handset in 17 seconds – were extremely difficult for me, particularly in light of the ambiguous language in the Second Report and Order, *see Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, Second Report and Order, 14 FCC Rcd 10954 (1999). Nevertheless, I agree with the Commission's resolution of these questions in this item. I dissent, however, from the Commission's failure to initiate a further proceeding on 911 call completion.

During the course of this proceeding, representatives of several equipment manufacturers suggested that a further proceeding would be beneficial – to provide clarity on what exactly is required for 911 call completion going forward. In particular, they pointed out that the present item addresses only analog handsets, which represent an increasingly smaller fraction of handsets in use. Having clear standards for digital handsets would be useful going forward and might help the industry avoid the kind of lawsuits that gave rise to the present item.

In my view, the Commission should have taken the manufacturers up on their offer. Initiating a further proceeding would not only provide the desired regulatory clarity, but it would ensure the effectiveness of 911 call completion in the digital world. 911 calls are simply too important to risk allowing unacceptable call completion delays. An investigation of call completion in digital handsets seems a small step toward ensuring public safety. Accordingly, I dissent in part.